

WHAT IS CLAIMED IS:

1. A method for resource accounting on a computer network which collects resources used by a server of a computer system, wherein the computer system has an accounting server to collect server resources used by said server, said server and said accounting server are connected to each other over a network, and said server includes a CPU to initiate an OS or application software and a control unit to perform processing independent of said CPU,

said method comprising the steps of:

registering information on a user who uses said server;

allowing said registered user to use a resource of the server by initiating an OS or application software;

allowing said control unit to communicate with the OS or said application software that is operating on said CPU;

allowing said control unit to acquire the information on the user who used said server resource and resource information used including an amount of server resource used by the user through said communication;

allowing said control unit to transmit said acquired resource information used to said accounting server; and

allowing said accounting server to receive said resource information used and account the information on a user basis.

2. A method for resource accounting on a computer network according to claim 1, wherein,

said step of registering information on a user includes processing to set a global user ID to uniquely identify the user
5 in the computer system, designate a server to be used by the user in the computer system according to a unique server ID, and set a local user ID to uniquely identify the user in the computer system;

said step of allowing said control unit to transmit said
10 resource information used to said accounting server includes processing in which the local user ID associating with the user and the server ID associating with the server are transmitted as information to uniquely identify said user; and

said step of allowing said accounting server to receive
15 said resource information used and account the information on a user basis includes processing to identify said global user ID associating with the user based on said local user ID and said server ID received, and account the amount of said server resource used on the identified global user ID basis.

20 3. A method for resource accounting on a computer network according to claim 2, wherein a user ID that is managed by the OS operating on said server is used as said local user ID.

4. A method for resource accounting on a computer network according to claim 2, wherein said OS or said application

software authenticates said user, initiates execution of a thread based on a request by the user, acquires server resource information used by each of the thread, and transmits the server resource information acquired to said control unit on the local
5 user ID basis.

5. A method for resource accounting on a computer network according to claim 1, further comprising the step of allowing said accounting server to request said control unit to transmit said resource information used thereto.

10 6. A method for resource accounting on a computer network according to claim 5, wherein

the step of allowing said accounting server to request said control unit to transmit said resource information used thereto includes processing of adding information to designate
15 a user from whom said resource information used is to be acquired to a transmission request of said resource information used and transmitting the transmission request to said network by means of a broadcast; and

the step of allowing said server to transmit said resource
20 information used to said accounting server includes processing in which, if said server retains the resource information of the user from whom said resource information used is to be acquired, only the resource information used of the user is selectively transmitted, and if said server does not retain the

resource information of the user from whom said resource information used is to be acquired, then information showing the server does not retain the resource information used of the user is transmitted.

5 7. A method for resource accounting on a computer network according to claim 1, wherein, in the step of registering information on a user who uses said server, a registration is made by utilizing a graphical user interface (GUI).

 8. A system for resource accounting on a computer network
10 which accounts resource used by a server of a computer system,
 wherein the computer system has an accounting server to collect server resources used by said server, said server and said accounting server are connected to each other over a network, and said server includes a CPU to initiate an OS or application
15 software and a control unit to perform processing independent of said CPU;

 wherein said server includes means for registering a user who uses said server, and means for recording, on a user basis, an amount of server resource used by the registered user by
20 initiating the OS or the application software;

 wherein said control unit including means making communication with the OS or the application software operating on said CPU, and acquiring, through the communication, resource information used that includes user information of the user who

used said server resource and an amount of server resource used by the user, and means for transmitting said acquired resource information used to said accounting server; and

wherein said accounting server including means for
5 receiving said resource information used from said control unit and accounting the information on a user basis.

9. A system for resource accounting on a computer network according to claim 8, wherein, said OS or said application software comprises:

10 a user authentication unit which authenticate said user;
a thread execution initiation unit which initiates execution of a thread based on a request by the user;
acquiring means for acquiring server resource information used by each of the thread; and
15 transmission means for transmitting the acquired server resource information to said control unit.

10. A system for resource accounting on a computer network according to claim 8, wherein, when registering information on a user who uses said server, said accounting server executes
20 the registration via said network.

11. A server having a capability of acquiring a resource used, comprising:

a CPU to initiate an OS or application software;
a control unit to perform processing independent of said

CPU;

means for recording the amount of server resource used for initiating said OS or said application software on said user basis and acquiring said amount of server resource as resource information used which contains user information of a user who
5 used said server resource and the amount of server resource used by the user;

wherein said control unit includes means for making communication with the OS or the application software that is
10 operating on said CPU, and means for acquiring said resource information used through the communication.

12. A server having a capability of acquiring resource used according to claim 11,

wherein said control unit includes an interrupt circuit
15 which executes an interrupt to said CPU as means for requesting acquisition of said resource information used, and a device driver which is initiated by said interrupt as means for acquiring said resource information used, said device driver acquiring said resource information used by calling an API
20 provided by said OS.

13. A server having a capability of acquiring resource used according to claim 11,

wherein said control unit includes a register which is writable from the control unit and readable from said CPU, and

means for writing an identifier to request the register to acquire resource information used in the register, as means for requesting acquisition of said resource information used; and

wherein said means for acquiring said resource

5 information used includes detection means for allowing said OS or said application software to detect said identifier that has been written by polling said register, an API call unit which calls an API provided by said OS or said application software, and an acquisition unit which acquires said resource information
10 used.

14. A server having a capability of acquiring resource used according to claim 11, further comprising a main storage device having a specified area that is writable from said control unit and readable from said CPU;

15 wherein said main control unit includes means for writing an identifier to request said specified area to acquire resource information used, as said means for requesting acquisition of said resource information used; and

wherein said OS or said application software detects said
20 identifier that has been written by polling said specified area, calls an API provided by the OS or the application software, and acquires said resource information used, as means for acquiring said resource information used.

15. A server having a capability of acquiring resource

used according to claim 11, wherein said control unit further has a storage device which is writable from said CPU, and means for detecting writing to the storage device, whereby said control unit is enabled to acquire said resource information used when said OS or said software application writes said resource information used in said storage device.

16. A server having a capability of acquiring resource used according to claim 11, further comprising a main storage device having a specified area which is writable from said CPU and readable from said control unit, whereby said control unit is enabled to acquire said resource information used when said OS or said software application writes said resource information used in said storage device.

17. A billing method for resource used in a server of a computer system, wherein said computer system has an accounting server which accounts server resources used in said server, said server and said accounting server are connected to each other via a network, and said server includes a CPU to initiate an OS or application software and a control unit which executes processing independent of said CPU, said server comprising steps of:

- registering information on a user who uses said server;
- allowing said registered user to use resource of said server by initiating the OS or the application software;

allowing said control unit to communicate with the OS
or the application software running on said CPU;

allowing said control unit to acquire resource
information used which contains user information of a user who
5 used said server resource and an amount of server resource used
by the user through said communication;

allowing said control unit to transmit said acquired
resource information used to said accounting server;

allowing said accounting server to receive said resource
10 information used and account the information on said user basis;

determining an amount to be billed based on said resource
information used that is accounted on said user basis; and

billing said amount to the user.

18. The billing method for resource used in a server of
15 a computer system according to claim 17, wherein said step of
transmitting said resource information acquired by said control
unit to said accounting server includes processing for
transmitting information on time at which said user used
resource of the server, and

20 said step of allowing the accounting server to execute
billing of said amount to the user includes processing of
transmitting a server resource usage history that is generated
based on said time information used to the user.

19. A server which is divided into a plurality of logical

partitions, wherein the server initiates one OS and 0 or 1 or more application software on each logical partition, said server comprising one or more CPUs and a control device which executes processing independent of said CPU;

5 said control unit comprising means for requesting the OS or application software running on part or all logical partitions to acquire resource information used containing user information of a user who used a server resource and an amount of server resource used by the user; and

10 said OS or said application software comprise means for replying resource information used in response to a request from said control unit.

20. A server which is divided into a plurality of logical partitions, wherein the server is initiates one OS and 0 or 1
15 or more application software on each logical partition, said server comprising one or more CPUs, a control device which executes processing independent of said CPU and a hypervisor which accepts a request from said control unit;

 said control unit comprising means for requesting said
20 hypervisor to acquire resource information used which contains user information of a user who used said server resource and an amount of server resource used by the user:

 said hypervisor comprising means for transferring said request to the OS or application software running on part or

all logical partitions in response to a request from said control unit; and

said OS or said application software comprises means for replying resource information used in response to said request.

5 21. A server according to claim 19, further comprising an interrupt circuit as means for requesting acquisition of said resource information used.

 22. A server according to claim 20, further comprising an interrupt circuit as means for requesting acquisition of said
10 resource information used.